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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,078	06/30/2005	Hermann Bodinger	4001-1190	8279
466 7590 09/03/2008 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			EXAMINER KOSLOW, CAROL M	
			ART UNIT 1793	PAPER NUMBER
			MAIL DATE 09/03/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/516,078

**Applicant(s)**

BODINGER ET AL.

**Examiner**

C. Melissa Koslow

**Art Unit**

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-6 and 10-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 13, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 3-6, 10, 11 and 14-22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/808)
- Paper No(s)/Mail Date 11/29/04.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 July 2008 has been entered.

As discussed in the Advisory Actions of 21 April 2008 and 6 June 2008, the objection to the disclosure under 35 USC 132(a) and the 35 USC 112 second paragraph rejections based on indefiniteness are withdrawn.

The amendment to the claims has overcome the 35 USC 112, second paragraph rejection based on the failing to set forth the subject matter applicants regard as their invention. Applicant's arguments with respect to the remaining rejections and objections of the disclosure have been fully considered but they are not persuasive.

The disclosure is objected to because of the following informalities:

The upper limit of  $x$  and  $y$  are not given and cannot be determined for the information disclosed in the specification. Page 8, lines 12-13 teach in one embodiment,  $x+y+z=1$ , which indicates that applicant intends for the inventive composition to include compositions where  $x+y+z$  is not equal to 1. In addition, the specification teaches the composition can be non-stoichiometric, which means  $x+y+z$  need not equal to 1. Therefore it is unclear what  $x$  and  $y$  ranges applicant considers as his invention. Appropriate correction is required.

Applicants' comment does not overcome the objection. It is maintained.

Claims 21 and 22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to

cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Claim 22 teaches the ceramic is a PZT piezoelectric composition. This does not further define claim 1 since it is clear from the formula of claim 1 that the piezoelectric composition of claim 1 is a PZT composition. Claim 21 does not further limit claim 1 since all PZT piezoelectric composition inherently have a morphotropic tetragonal rhomboidical phase boundary determined by the ratio of Zr and Ti.

Claims 1, 12, 13, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 12 and 13 teaches the metallization is selected from silver, copper, an alloy or silver/copper and alloys of silver/palladium; copper/palladium and silver/copper/palladium, where the amount of palladium in these alloys is greater than 0 up to 30%. Page 11 teaches the metallization can be silver, copper, an alloy, silver/copper or an alloy of silver and palladium, where the content of palladium is greater than 0 up to 30%. This does not support the claimed composition of alloys of copper/palladium and silver/ copper/palladium, where the amount of palladium in these alloys is greater than 0 up to 30%.

The added limitation to claim 1 and the limitation in claim 24 that "a" is greater than zero is new matter for the reasons given above.

Claim 23 is new matter since there is no teaching in the originally filed disclosure that the ceramic is a PZT present in a ratio of Zr and Ti. It is noted that page 8, lines 24-27 teaches that the claimed PZT has a ratio of Zr and Ti in a tetragonal and rhombohedral crystal structure.

The arguments with respect to these rejections set forth in the responses of 14 April 2008 and 12 May 2008 are not convincing for the reason given the Advisory Actions of 21 April 2008 and 6 June 2008. The supplied article does not show that the amount of lead must be less than 1, or in other words present in an amount is that less the stoichiometric amount of 1, in order for the composition to be piezoelectric. The amount of lead in the piezoelectric compounds discussed in the article is the stoichiometric amount of 1. Thus the article show that a do not have to be greater than 0 in order to a PZT based compound to be piezoelectric. The rejection is maintained.

Claims 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24 and 1 are duplicates. Applicant is advised that should claim 1 be found allowable, claim 24 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Claim 23 is indefinite as written. It is unclear how a PZT is present in a ratio of Zr and Ti. It is noted that page 8, lines 24-27 teaches that the claimed PZT has a ratio of Zr and Ti in a tetragonal and rhombohedral crystal structure.

Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action.

Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if claim 1 is rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action.

Claims 10, 11, 14- 20 are objected to as referring to a rejected base claim, but would be allowable if claim 1 is rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action.

There is no teaching or suggestion in the cited art of record of a piezoelectric ceramic having the formula  $\text{PbRE}_b\text{Zr}_x\text{Ti}_y\text{TR}_z\text{O}_3$ , where b is 0.002-0.03,  $z > b/(4-W_{\text{TR}})$ , RE is at least one of Gd, Eu, La, Nd, Pr, Pm and Sm, TR is at least one of Cr, Fr and Mn and  $W_{\text{TR}}$  is the valence of TR.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/  
September 4, 2008

/C. Melissa Koslow/  
Primary Examiner  
Art Unit 1793